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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,764	12/12/2001	Haruhiko Yamamoto	01-807	8667

24319 7590 12/01/2006

LSI LOGIC CORPORATION  
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EXAMINER
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TRINH, HOA B

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 12/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/020,764	YAMAMOTO ET AL.	
	Examiner	Art Unit	
	Vikki H. Trinh	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 March 2004.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 and 7-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4, 7-11, 14-18 is/are allowed.
- 6) ☒ Claim(s) 12, 13 and 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Continued Examination*

In view of the Board Decision dated June 30, 2006, PROSECUTION IS HEREBY REOPENED.

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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4. Claims 12-13, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woolhouse et al. (4,237,601) in view of Patel et al. (6,642,477).

Woolhouse et al. (4,237,601) discloses a method of forming a hole/groove(feature) in a substrate, where residue within the feature can be remove, the method comprising forming an upper sidewall portion of the feature 22 , the upper sidewall portion forming a void 22 in the substrate 10, where the upper sidewall portion has an upper sidewall angle, and forming a lower sidewall portion of the feature, the lower sidewall portion forming a void 22 in the substrate 10, where the lower sidewall portion has a lower sidewall angle, where the upper sidewall angle of the upper sidewall portion is shallower than the lower sidewall angle of the lower sidewall portion. The upper sidewall portion and the lower sidewall portion are formed by laser facets of the substrate. See column 1, lines 25-30, and see figure 2b.

However, Woolhouse et al. does not explicitly state that the upper and lower sidewall portions are formed by laser ablation.

Patel et al. '477 teaches the making of a through-hole in the substrate using laser ablation (col. 1, line 16).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the technique for shaping the sidewall of Woolhouse et al. with laser ablation, as taught by Patel et al., so as to provide a desired shape of the hole in the substrate. (col. 3, lines 10-19) . As to claim 12, Woolhouse et al. teaches that a feature 22 formed according to the method of claim 1. See figure 1b.

As to claim 13, Woolhouse et al. teaches that an integrated circuit substrate 10 having features 22 formed according to the method of claim 1. See figure 1b.

Woolhouse discloses a method for forming indicia elements on a substrate, where the indicia elements have a shape that aids in removal of foreign material from the indicia elements on the substrate 10, the method comprising the steps of forming an upper sidewall portion of the indicia elements 22, the upper sidewall portion forming a void 22 in the substrate 10, where the upper sidewall portion has an upper sidewall angle, forming a lower sidewall portion of the indicia elements, the lower sidewall is portion forming a void in the substrate, where the lower sidewall portion has a lower sidewall angle, where the upper sidewall angle of the upper sidewall portion is shallower than the lower sidewall angle of the lower sidewall portion, and forming the indicia elements in a pattern to form identifying indicia on the substrate. The upper sidewall portion and the lower sidewall portion are formed by laser ablation of the substrate. See column 1, lines 25-30, and see figures 1b, 2b.

Patel et al. '477 teaches the making of a through-hole in the substrate using laser ablation (col. 1, line 16).

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify the technique for shaping the sidewall of Woolhouse et al. with laser ablation, as taught by Patel et al., so as to provide a desired shape of the hole in the substrate. (col. 3, lines 10-19). As to claim 19, Woolhouse et al. teaches that an integrated circuit substrate 10 having identifying indicia formed according to the method of claim 14. See figure 2b and column 1, lines 7-45.

***Allowable Subject Matter***

5. Claims 1-4, 7-11, 14-18 are allowed.

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6. The following is an examiner's statement of reasons for allowance: see the Board's decision dated June 30, 2006.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Vikki Trinh whose telephone number is (571) 272-1719. The Examiner can normally be reached from Monday-Friday, 9:00 AM - 5:30 PM Eastern Time. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Mr. Wael Fahmy, can be reached at (571) 272-1705. The office fax number is 703-872-9306.

Any request for information regarding to the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Also, status information for published applications may be obtained from either Private PAIR or Public Pair. In addition, status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. If you have questions pertaining to the Private PAIR system, please contact the Electronic Business Center (EBC) at 866-217-9197 (toll free).

Lastly, paper copies of cited U.S. patents and U.S. patent application publications will cease to be mailed to applicants with Office actions as of June 2004. Paper copies of foreign patents and non-patent literature will continue to be included with office actions. These cited U.S. patents and patent application publications are available for download via the Office's

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PAIR. As an alternate source, all U.S. patents and patent application publications are available on the USPTO web site ([www.uspto.gov](http://www.uspto.gov)), from the Office of Public Records and from commercial sources. Applicants are referred to the Electronic Business Center (EBC) at <http://www.uspto.gov/ebc/index.html> or 1-866-217-9197 for information on this policy. Requests to restart a period for response due to a missing U.S. patent or patent application publications will not be granted.

Vikki Trinh,  
Patent Examiner  
AU 2814

A handwritten signature in black ink, appearing to read "Howard Weiss", is positioned above the printed name.

**HOWARD WEISS  
PRIMARY EXAMINER**